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ABSTRACT

The current study was conducted to evaluate the academic performance of black students at the University of Missouri-Columbia as compared to a matched group of white students at the same institution. Predictors of academic success currently in use were investigated to see if they showed approximately the same validity for both black students and white students. Sex and class differences in both performance and prediction were examined. Significant differences were found in tested ability and grade point average. The value of predictors for black male students was found to be negligible. (Author)

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Prediction of academic success of black students: a dilemma

David D. Sampel and Warren R. Seymour

There has been increasing pressure from black students, on college and university campuses across the country, for solutions to problems which black students encounter at predominantly white institutions. Many of these problems center around such things as admissions policies, financial aid, personal adjustment, tutoring, and advisement, and the general area of academic success.

The prediction of academic success for college students has been the subject of a considerable body of research. There is far less evidence available regarding the prediction of academic success for black students. This lack of evidence is particularly disturbing in the light of present criticisms being directed against the use of the usual predictors of academic success as major factors in determining the eligibility for admissions of minority students.

The research that is available is somewhat restricted and occasionally contradictory. Stanley and Porter (1967) found that the Scholastic Aptitude Test (SAT) correlated rather well with freshman grades in black colleges. This evaluation was based on a comparison with SAT correlations in predominantly white colleges in the same state. The conclusion was reached that SAT-type tests were valid as predictors for blacks who were competing with blacks taught by black instructors.

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SAT scores and high school rank (HSR) were examined as predictors of Negro freshman performance (GPA) in a predominantly non-Negro university in a study by Harris and Reitzel (1967). Their conclusions may be summarized as follows:

1. The mean SAT for Negroes was approximately one-half standard deviation below the total freshman mean.
2. The Negro HSR was two-thirds of a standard deviation above the total freshman mean.
3. The mean GPA for Negroes was about one-third of a standard deviation below the total freshman mean.
4. Negro academic achievement was best predicted when the prediction equations were developed for them as a group rather than as members of the total freshman class.

In their research, Clark and Plotkin (1963) concluded that the predictive value of standardized intelligence tests was not high and that SAT-type tests were not clearly associated with college grades among black students in integrated colleges.

More recently, Cleary (1968) re-examined the conclusions of Clark and Plotkin, his research indicating that there was little evidence to support the hypothesis that aptitude tests were biased against black students when used as predictors of college grades. In the two colleges investigated, she found no significant differences in their predictive power for black students as compared to white students. It has also been indicated (Bindman, 1963) that black male students whose American College Test (ACT) scores indicated adequate college

preparation succeed as well as other students.

Berry and Jones (1960) investigated the efficiency of the School and College Ability Test (SCAT) as a predictor of academic success of Grambling College freshmen. Criteria of academic success were total first semester grade point average (TGPA) and grades in specific courses. Their general conclusion was that SCAT was not a consistent predictor of these criteria even though they found a correlation of +.64 between TGPA and SCAT total. However, SCAT consistently predicted course grades better than achievement tests in those subjects.

Shuey (1966) concluded that blacks, on the average, do not perform as well as non-blacks on standardized tests. At a large midwestern university, he found that the non-black freshman placement test mean was more than one standard deviation above the mean of a sample of black male students.

Purpose

The purpose of this study was to investigate the efficiency of the two basic predictors of academic success at the University of Missouri-Columbia as they apply to both black students and white students. The major questions asked were:

1. How does the performance of black students on these variables (predictors and criterion) compare with the performance of white students?
2. What are the correlations between these predictors variables and academic success for black students as compared to white students?
3. Are there sex and/or class level differences present?

Method

Subjects

The subjects in this study were 180 black students (67 males and 113 females) at the University of Missouri-Columbia during the academic year 1968-69, and a matched group of 180 white students at the same institution. Since exact figures were not available on the total number of black undergraduates on this campus, the proportion represented by the sample is not known, but it is believed to be in the 70-75 per cent range. The sample of white students were matched with the black students on the basis of sex, college or division, and class in college.

Predictor and Criterion Variables

The predictor variables used in this study were the Cooperative School and College Ability Test (SCAT) and a measure of high school rank (HSR) which is an indication of an individual's ranking in high school compared to that of other entering freshmen at the University of Missouri-Columbia during the same academic year. The criterion variable was academic success as measured by the individual's cumulative grade point average (GPA).

Previous research indicates that, in general, SCAT correlations with college GPA tend to range from about +.40 to +.60 (Buros, 1965). This corresponds closely to the range of correlations, reported for the University of Missouri-Columbia, between SCAT, HSR, and first semester freshman GPA in various divisions (Prediger, Krauskopf and Callis, 1963).

Sex differences on these variables were investigated partly in response to Clark and Plotkin's data which showed more black females than black males in the college population (the reverse is true for whites) and a tendency for black

females to complete college more frequently than black males and to earn higher grades while in college.

Data Analysis

The black student sample was divided into a freshman group and an upperclass group (sophomores, juniors and seniors) by sex, as was the matched group of white students. Means and standard deviations were derived for SCAT, HSR and GPA for the total samples as well as for the sub-groups (see Table 1). Mean differences between groups were tested by the use of t-ratios (see Table 2), using the .05 level of significance.

Insert Table 1 about here.

Correlation coefficients were then computed between SCAT scores and cumulative GPA and between HSR and cumulative GPA for the total samples and sub-groups (see Table 3). The resulting sample correlations were tested against the hypothesis that the population value was zero, using t-tests and the .05 level of significance.

Insert Table 2 about here.

Results

In an attempt to answer the question of relative performance, an analysis of the mean scores on the three variables yielded the following results (see Table 2):

SCAT. The matched group of white students showed significantly higher SCAT scores than the black student group. This was true for males and females as well as for freshmen and upperclassmen.

Significant differences on SCAT within the black student group were found between female freshmen and female upperclassmen and between the total freshman and upperclass groups. No significant differences on SCAT were found within the white student group.

HSR. On HSR, white female upperclassmen scored significantly higher than their black counterparts. This difference was large enough to produce a significant difference between the total groups of upperclassmen.

Sex differences were also apparent on HSR, with black females scoring significantly higher than black males at both the freshman and upperclass levels. White females scored significantly higher than white males at the freshman level only. Black upperclassmen, male and female, scored significantly higher than black freshmen on HSR. These level differences did not appear in the white student group.

GPA. The white student group achieved a significantly higher cumulative GPA than did the black student group. Significant differences in GPA were also found between blacks and whites in all sub-groups.

Within the black student group, upperclass females achieved significantly higher cumulative GPA's than male upperclassmen which also served to produce a significant difference between the total upperclass and freshmen groups.

White female freshmen achieved significantly higher GPA's than did white male freshmen and upperclass males showed significantly higher GPA's than freshman males.

Insert Table 3 about here

Correlation coefficients between the predictor variables, SCAT and HSR, and the criterion of academic success (GPA) were examined to see what evidence of predictive validity there was for the various groups.

SCAT. The correlation between SCAT and GPA for black males, both freshmen and upperclass, were quite low and not statistically significant, in contrast to significant correlations for white males. Black females, on the other hand, showed significant correlations between SCAT and GPA as did white females.

Total group correlations, freshmen and upperclass, were significant for both the black and the white students, ranging from +.30 to +.65.

HSR. As was the case with SCAT, correlations between HSR and GPA for black male students did not reach significance at the .05 level, whereas those for white male students did.

Correlations between HSR and GPA were significant for both the white and the black female groups.

Total groups correlations were also significant for both blacks and whites, ranging from +.24 to +.61.

Discussion

Several important implications arise from the results of this study. The suggestion that Black students show lower scores on standardized tests of ability seems to be substantiated. Black students scored significantly lower than white students on SCAT for all groups. These across-the-board differences were not found on the other criterion variable, HSR.

The academic success (GPA) of the white students was also significantly higher than for blacks in all groups. The cumulative GPA for black males is particularly disconcerting since it indicates that a great many are in hot water academically right from the start and that even for those who survive the freshman year, their cumulative GPA is marginal, at best. Black females, by comparison, show a relatively low mean GPA their freshman year, but those who successfully weather the freshman year show a mean GPA well above a 2.0.

The second aspect of this study dealt with the validity of SCAT and HSR as predictors of academic success (GPA). Significant correlations between SCAT and GPA and HSR and GPA were found for all groups with the exception of black males. The correlations for the other groups were quite comparable to those previously found at UMC. The fact that for black males neither of the predictor variables showed significant correlations with the criterion variable coupled with the poor academic performance of black males in general presents an extremely difficult situation as far as the recruitment of additional minority group students is concerned.

Black students at many universities are demanding proportionately greater numbers of black students among incoming freshman class. Fellow students, faculty members, administrators, and admissions officers, sympathetic to these demands have proposed, and in some cases carried out a variety of schemes for increasing the number of black freshmen. The question then becomes: How should these black students be selected so that there is some assurance that they will be able to succeed academically?

The data in this study suggest that, for black males, some of our well-established predictors of academic success have little, or no relevance. This, of course, could be a function of both the criterion and the predictor variables.

Research is desperately needed to identify productive correlates of academic achievement for minority students. The "culture-fair" test continues to elude our grasp, but if we are to begin to solve the problem of selection of minority students, we must renew our efforts to produce such instruments or find satisfactory substitutes. In the meantime, those involved in the selection process should be keenly aware of the inadequacies of some of the preditors currently in use when they are applied to various minority groups.

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TABLE 1

Means and Standard Deviations for SCAT total (raw), HSR (T), and Cumulative GPA

		SCAT				HSR				GPA			
		Black		White		Black		White		Black		White	
	N	X	S.D.	X	S.D.	X	S.D.	X	S.D.	X	S.D.	X	S.D.
Male													
Freshman	38	62.1	15.2	78.2	14.9	46.7	8.5	49.3	10.9	1.60	.69	2.18	.73
Upperclass	29	68.0	15.0	80.4	13.3	52.8	8.7	52.2	9.8	2.00	.33	2.55	.62
Female													
Freshman	50	58.0	16.4	79.4	13.2	51.5	8.7	53.3	7.2	1.77	.69	2.55	.76
Upperclass	63	70.5	14.4	78.7	12.6	58.0	9.4	54.2	8.6	2.21	.37	2.58	.53
Total													
Freshman	88	59.8	15.9	78.9	13.9	49.4	8.9	51.5	9.2	1.70	.69	2.39	.77
Upperclass	92	69.7	14.6	79.2	12.8	56.4	9.5	53.6	9.0	2.15	.37	2.57	.56
Total	180	64.8	16.0	79.1	13.3	53.0	9.8	52.6	9.1	1.93	.60	2.48	.67

TABLE 2

Mean Differences Between Groups

	Groups Compared	t-values SCAT	HSR	GRA
1.	Black Male Freshmen - White Male Freshmen	4.68*	1.15	3.60*
2.	Black Male Upperclass - White Male Upperclass	3.33*	0.24	4.19*
3.	Black Female Freshmen - White Female Freshmen	7.20*	1.09	5.33*
4.	Black Female Upperclass - White Female Upperclass	3.38*	2.38*	4.43*
5.	Black Male Freshmen - Black Female Freshmen	1.19	2.62*	1.20
6.	Black Male Upperclass - Black Female Upperclass	0.76	2.53*	2.59*
7.	White Male Freshmen - White Female Freshmen	0.41	2.08*	2.29*
8.	White Male Upperclass - White Female Upperclass	0.61	0.98	0.22
9.	Black Male Freshmen - Black Male Upperclass	1.59	2.91*	2.94*
10.	Black Female Freshmen - Black Female Upperclass	4.29*	3.76*	4.28*
11.	White Male Freshmen - White Male Upperclass	0.63	1.15	2.14*
12.	White Female Freshmen - White Female Upperclass	0.32	0.62	0.17
13.	Black Freshmen - White Freshmen	8.50*	1.54	6.30*
14.	Black Upperclass - White Upperclass	4.70*	2.06*	6.01*
15.	Black Freshmen - Black Upperclass	4.37*	5.07*	5.45*
16.	White Freshmen - White Upperclass	0.15	1.52	1.72
17.	Black Total Group - White Total Group	9.12*	0.41	8.29*

*Significant at the .05 level.

TABLE 3

Correlation Coefficients Between Predictor Variables (SCAT, HSR) and Cumulative GPA

	N	SCAT BLACK r	SCAT WHITE r	HSR BLACK r	HSR WHITE r
Male					
Freshman	38	.09	.44*	.21	.60*
Upperclass	29	.07	.64*	.00	.70*
Female					
Freshman	50	.50*	.34*	.41*	.46*
Upperclass	63	.38*	.67*	.25*	.56*
Total					
Freshman	88	.30*	.38*	.34*	.54*
Upperclass	92	.30*	.65*	.24*	.61*
TOTAL	180	.38*	.49*	.39*	.57*

*Significant at the .05 level.